Ketterson / Nolan Research Group Collection

This document is part of a collection that serves two purposes. First it is a public archive for data and documents resulting from evolutionary, ecological, and behavioral research conducted by the Ketterson-Nolan research group. The focus of the research is an abundant North American songbird, the dark-eyed junco, *Junco hyemalis*, and the primary sources of support have been the National Science Foundation and Indiana University. The research was conducted in collaboration with numerous colleagues and students, and the objective of this site is to preserve not only the published products of the research, but also to document the organization and people that led to the published findings. Second it is a repository for the works of Val Nolan Jr., who studied songbirds in addition to the junco: in particular the prairie warbler, *Dendroica discolor*. This site was originally compiled and organized by Eric Snajdr, Nicole Gerlach, and Ellen Ketterson.

Context Statement
This document was generated as part of a long-term biological research project on a songbird, the dark-eyed junco, conducted by the Ketterson/Nolan research group at Indiana University. For more information, please see IUScholarWorks (https://scholarworks.iu.edu/dspace/handle/2022/7911).

Molt 1999

Each bird caught during the late season should be inspected for molt. If the bird is not molting simply enter an 'NM' in the comments column of your banding sheet. However, if the bird appears to be molting, please record the fact on the molt data sheet. Then inspect each feather tract and record the molt condition on a separate molt sheet.

Adults (see ADULT MOLT SHEET)

The purpose of these data is to quantify the normal sequence and timing of molt in juncos and how it varies from year to year and with an individual's reproductive success.

For the flight feathers (primaries, secondaries, and rectrices), we need to record if the feather is old (O), missing (M), growing (G), or new (N). Growing feathers should be examined and their length recorded on the molt sheet as a percentage of full grown. The flight feathers usually molt symmetrically; i.e. when primary 1 molts on the right wing, it also molts on the left wing. This fact should help you distinguish between a feather that has been pulled out and one that is molting. Note also whether the wing (secondary and marginal) coverts and tail (upper and lower) coverts are molting

Adults will molt all tracts on the body. If a particular tract is not molting, you don't need to record anything about that tract on the molt sheet. If a tract on the bird's body is molting, record whether the new feathers are a) quills, b) brush tips, or c) fully erupted feathers. If fully erupted, note whether they still have a sheath at the base or are completely grown. These (a, b, c with sheath) are referred to as early, middle, and late, respectively. If the feather is new and the sheath is gone, then the feather is complete. . Please estimate the percentage of feathers in a tract that are molting.

.Example: Hypothetically, an adult junco is molting on the spinal tract in both the anterior (quills = E for early molt) and the pelvic regions (brushes = M for mid-molt). The bird is also molting on the crown (quills = E for early), the breast (brushes = M for mid-molt. In all these spots nearly all the feathers are molting (>50%). The junco is also molting the 1st (growing back), 2nd (growing, G, half-length of 50%) and 3rd (missing) primaries and the 1st (growing, G, two-thirds new, 66%) and 2nd (missing) rectrices.

Juveniles

The purpose of obtaining this information is to let us age juveniles. By recording details of molt in birds of known age (banded as nestlings) and comparing this information with molt observed on birds of unknown age, we can estimate the ages of the latter group. Banded nestlings are therefore critically important.

Procedure (**see JUVENILE MOLT SHEET)**

Look first at the mid-spine, which has a wide apterium (unfeathered area) on each side of the band of feathers along the spine. If you see no quills, blow on the breast as you do when checking for fat. If you see no quills there, stop looking and write "NM" on banding sheet. If you see quills or more advanced feathers (see below) on each side of the furcula (wishbone), record type and percentage on the molt form. (In general, any space left blank on the molt form means you saw no molt for this area.) You will rarely see ventral molt if there is none on the spine.

If you do find molt on the mid-spine, does it also extend anteriorly toward the neck, posteriorly toward the pelvis? If so, record percentage and type on the form. Were there quills (E = early), brush feathers, just erupting at tips (M = mid), feather molt erupted but sheathed at base (L = late) or complete new feathers (C= complete)? If there was any mix of different stages, estimate the % in each stage. Note that this estimate is a loose one (roughly a few = < 5%, medium = 10-50%, and a lot = > 50%) and that the percentages do not have to add to 100%.

Now look at the area on each side of the furcula; expect to see molt if the spine was molting a lot. Note amount of molt on both breast and belly on form.

Now run your pencil along feathers of heard from nape to bill. Any molt on nape, crown, ears?

Juveniles do not molt their flight feathers but they do molt their secondary coverts (see picture below). Now look at the secondary coverts and determine type and % of molt involved.

In later stages, molting feathers will be apparent without your blowing or otherwise disturbing the plumage. First, the breast will show a row of white feathers on each side, like an inverted V that doesn't quite meet at the tip, which is at the neck. The bib will begin to look gray instead of speckled, the back gray instead of brown, the head ditto. Just do you best to make brief descriptive statements.

For birds banded as nestlings, go into as much detail as you can, recording this kind of observation on the reverse side of the molt sheet (be **sure** to note band number on reverse too).